Lab 7 – Getting to Know CorpsMap

CRREL Remote Sensing/GIS Center of Expertise - - Hanover, NH

Objectives

The purpose of this lab is to show how USACE employees can use CorpsMap, a web-based geographic information system that is the geospatial information portal for the Corps of Engineers.

Interspersed throughout the lab, you will see bulleted lists of one or two questions. These questions are a way for you to test yourself as to how well you have understood what is happening in that section. If you get stuck, ask the instructors who will be in attendance. They may be able to answer the question, or at least get you started in the right direction.

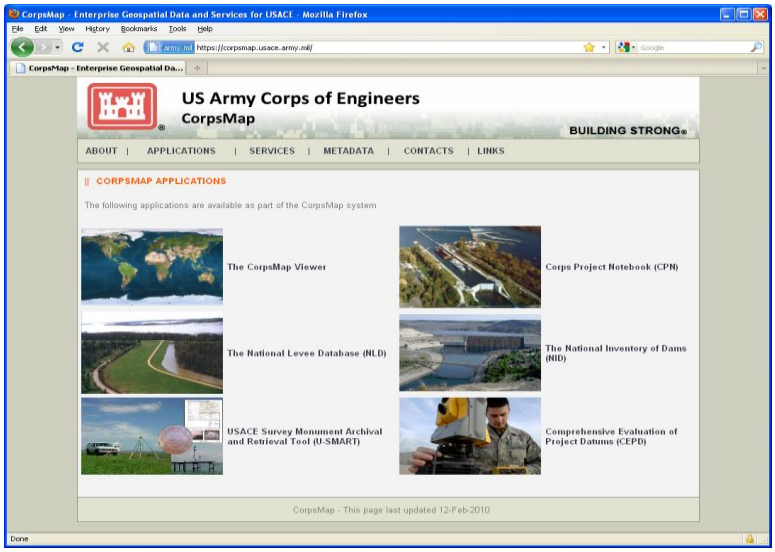
If you are doing this lab at the CRREL RS/GIS Center training facility, the lab exercises and write-ups will be located on your computer hard drive in `C:\GIS_Intro`. Inside this folder is a directory called `lab_data`; this is the directory that contains all of the map documents and data that you will use as you complete the labs for this course. The lab write-up PDF files (including this document) are located in the folder `lab_writeups`.

Procedure

Place check marks in front of steps as you go along.

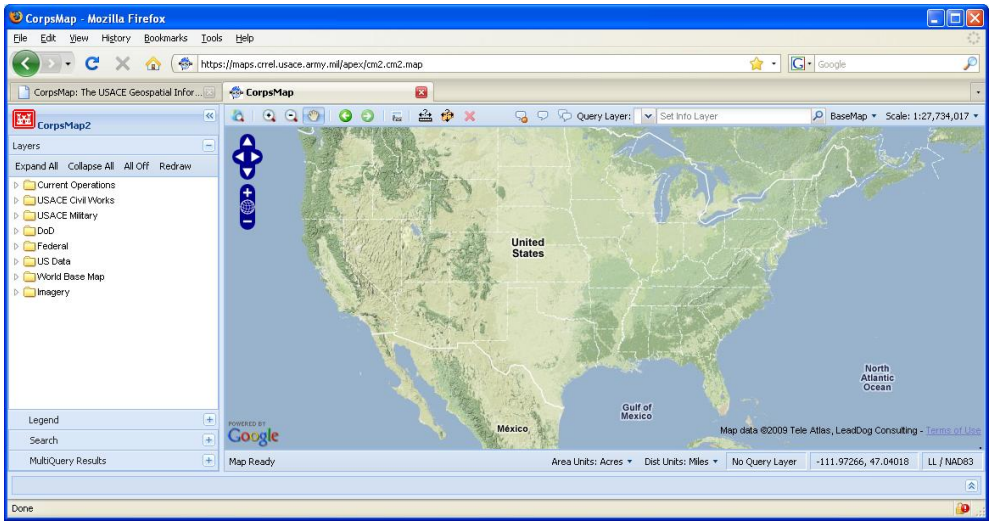
Answer questions indicated at bullet points.

___1. Open up the "Firefox" web-browser. In the address bar, type in https://corpsmap.usace.army.mil, to navigate to the CorpsMap homepage. You may have to accept a few security certificates.



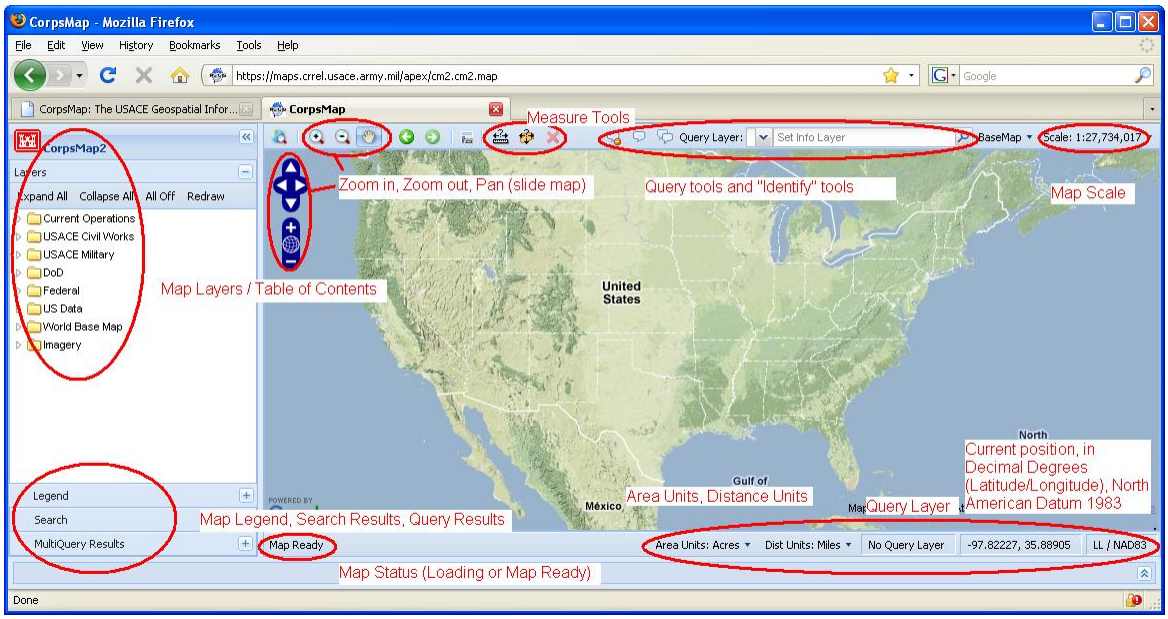
Click the words or the image next to where it says "The CorpsMap Viewer".

A new tab will open in your browser, and should look something like this:



Note: If your computer has accessed CorpsMap before, the settings from the previous session may zoom the map in to a particular area. If that is the case, click the "Zoom to maximum map extent" button in the upper left of the display.

Quick Tour of CorpsMap:



___2. If you don't see the layers on the left side of the screen, click the "Layers" button on the left to show the map layers. Expand the folder "USACE Civil Works". Notice that the layer "Corps Dams" is "grayed out". This means that the layer is not visible at this scale. To be able to see the Corps Dams, we'll need to zoom in.

Click the "Zoom In" tool, and then click-and-drag a box around the state of Oregon in the northwest. Take a look at the map scale in the upper right corner. Remember that with map scale, "Large is small" – because map scale is a ratio or fraction. Map scale is the relationship between distance on the map and distance on the ground, and is usually

expressed as a ratio, such as 1:24,000 or 1/24,000. So, 1 inch on the map represents 24,000 inches (2000 feet, or about 0.4 miles) on the ground. A 1:63,360 map has 1 inch on the map exactly equal to 1 mile on the ground.

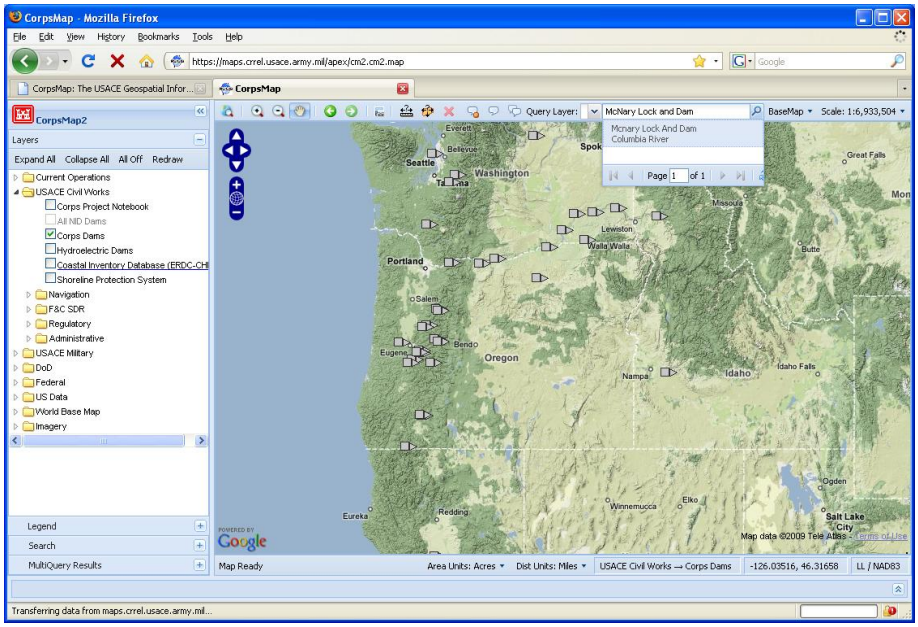
So, a 1:63,360 map, where 1 inch on the map represents 1 mile on the ground, is a larger-scale map than a 1:316,800 map, where 1 inch represents 5 miles on the ground.

The scale used for most US topographic mapping is 1:24,000. This is a fairly large-scale map, and detailed information such as buildings, large and small roads, campgrounds, trails and ski lifts can been drawn at this scale.

Small-scale maps (1:250,000 and smaller) have the ability to show large areas on a single map sheet, but less detail can be shown at this scale. Generally, major roads, larger streams and rivers, railroads and boundary lines are shown at this scale, but other details are not shown.

___3. Back to CorpsMap. Zoom in to the State of Washington. In the upper right corner, if your scale is larger than 1:15,000,000 (remember it's a ratio), the "Corps Dams" layer in the "USACE Civil Works" folder should be black now in the table of contents. Click the checkbox next to "Corps Dams" to turn on the layer. The map will take a moment to re-draw, but when it is done, it should show Corps Dams in grey. Notice also that the box next to "Query Layer" has changed to read "Enter Dam Name", instead of reading "Set Info Layer".

In the "Query Layer" box, type `Mcnary Lock and Dam` As you type, a dam or list of dams may begin to show up under the query box:

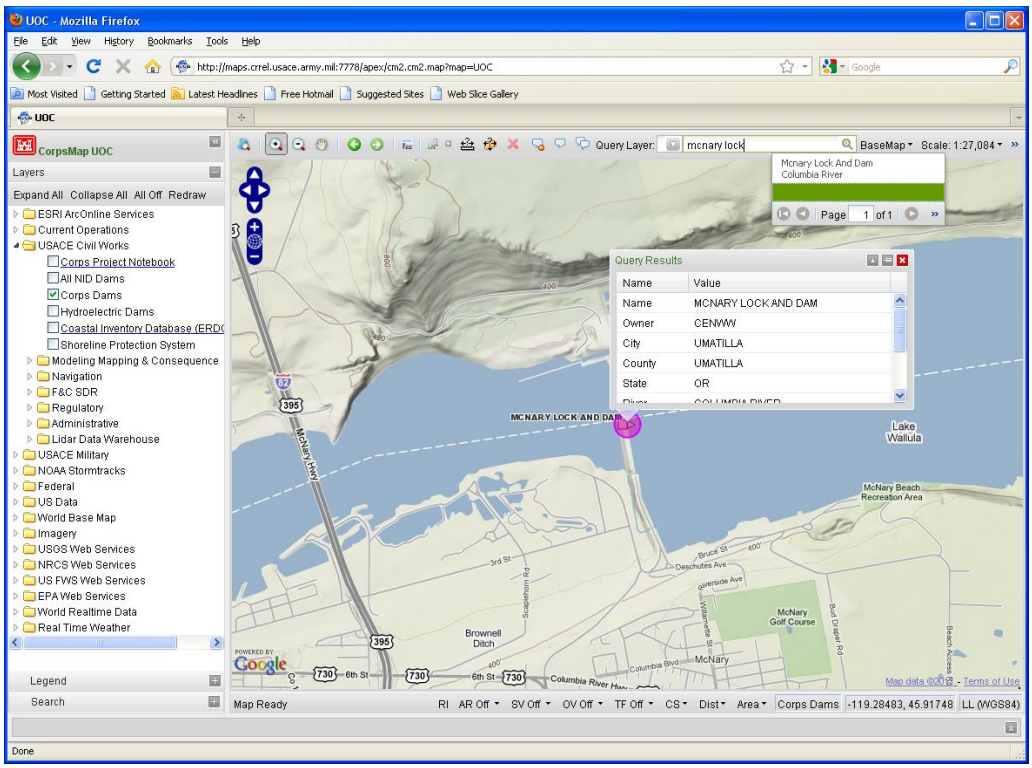


- ___4. Once you've typed in the words and results pop up under the query box, use the mouse to click on "Mcnary Lock and Dam"or use the mouse to select "McNary Lock and Dam" from the drop-down menu. The map will then zoom in automatically to the Mcnary Lock and Dam on the Columbia River along the Washington-Oregon border, to a scale of about 1:27000 (large scale)

Notice also that CorpsMap has popped up a "Query Results" window. Scroll down in this window to answer the following question:

- When was the Mcnary Lock and Dam inspected? _____

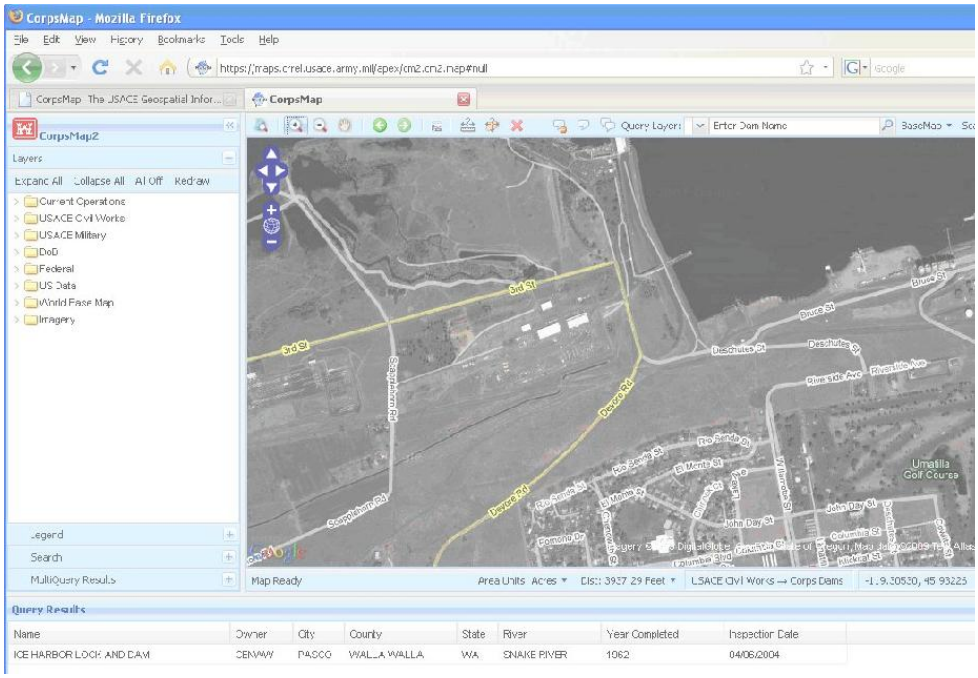
Zoom in to the dam, at about a 1:50,000 scale (scale is in the upper right corner). If you closed the pop-up query box, you can display it again by clicking on the "Pop-up Info Query" button and clicking on the dam.



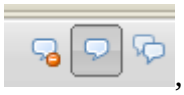
Clear this box by clicking the red "X" in the corner of the box.

___5. Using the "Base Map" drop-down menu in the upper right, change the BaseMap to "Google Hybrid". Zoom in to the Mcnary Lock and Dam, checking out the detail of the imagery at different scales.

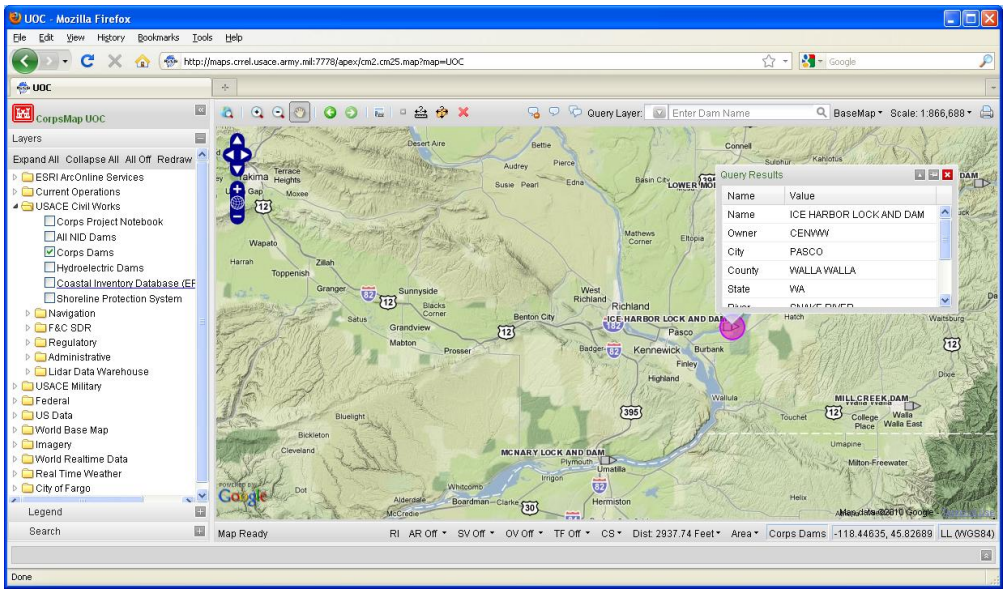
- How far (what scale) can you zoom in to and still see imagery? _____



Change the BaseMap back to "Google Terrain" and change the map scale to 1:866,688 using the drop-down arrow in the upper right of the screen, to get a broader view of the region.

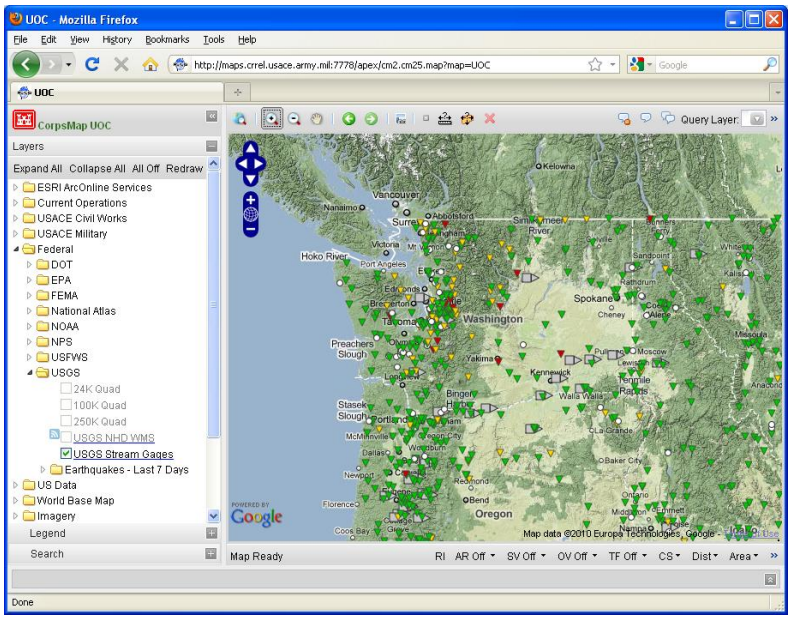
__6. Click the "Popup Info Query" button  , and then single-click on the "Ice Harbor Lock and Dam", which is north-east of Mcnary. It may take a few clicks to get the pop-up box to show up (try clicking close to where the square and triangle meet on the symbol for the dam). One can also draw a box around the symbol with the query tool to select it and any other features within the box.

- What year was the Ice Harbor Lock and Dam completed? _____

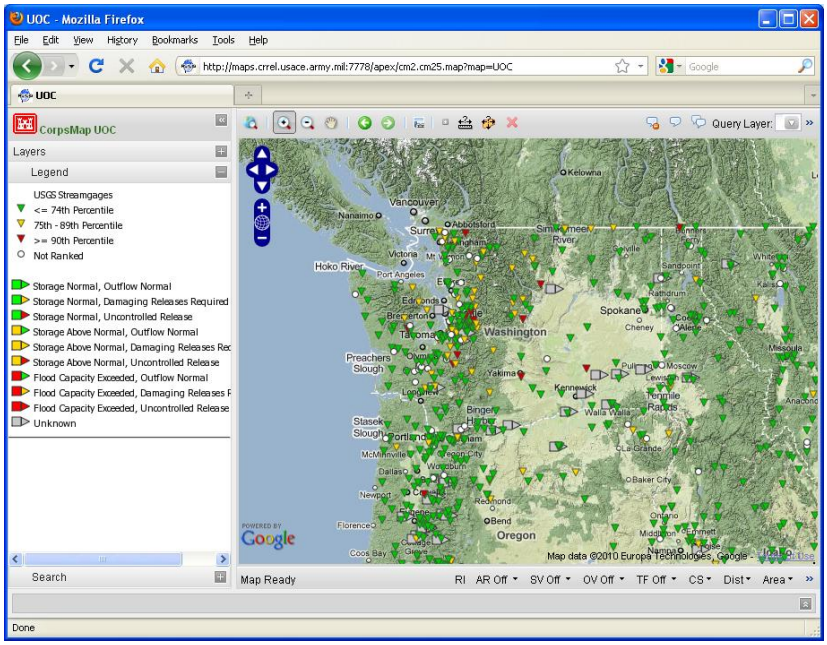


Set your scale to about 1:6,000,000 to view the states of Washington and Oregon again.

__7. In the Layers section on the left side of the map, turn off the Corps Dams, and then expand the “Federal” folder, and then the “USGS” folder, and place a check-mark next to “USGS Stream Gages”.

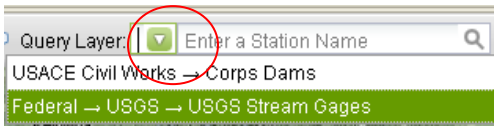


Next, click the “Legend” button on the left hand side of the map.

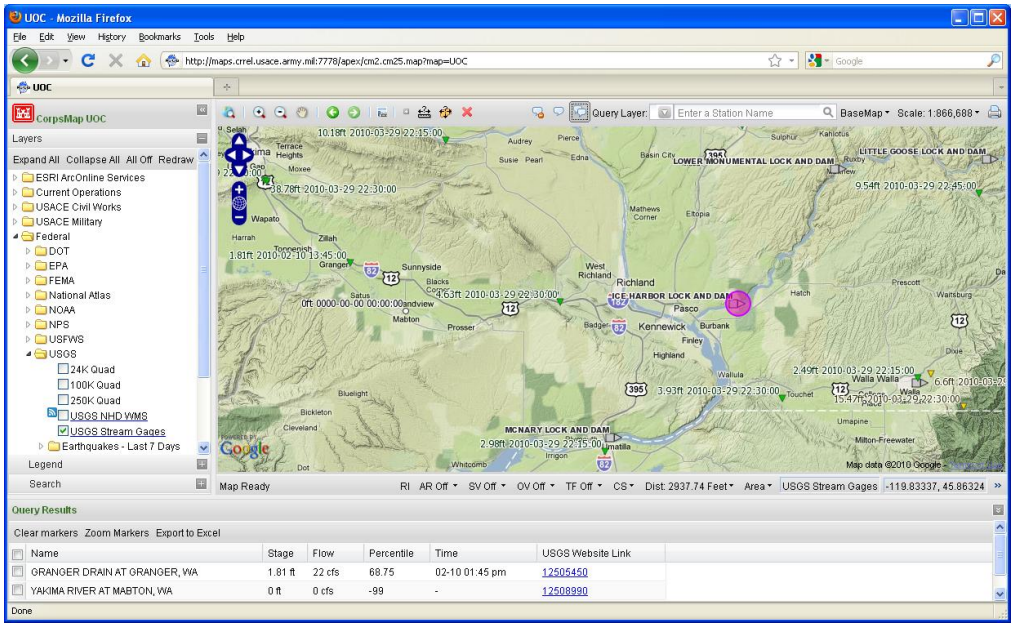


You'll see a legend for the USGS Stream Gages. If you still have the Corps Dams turned on, you'll also see a legend for that layer as well. Your screen may be slightly different, as the status of the stream gages change.

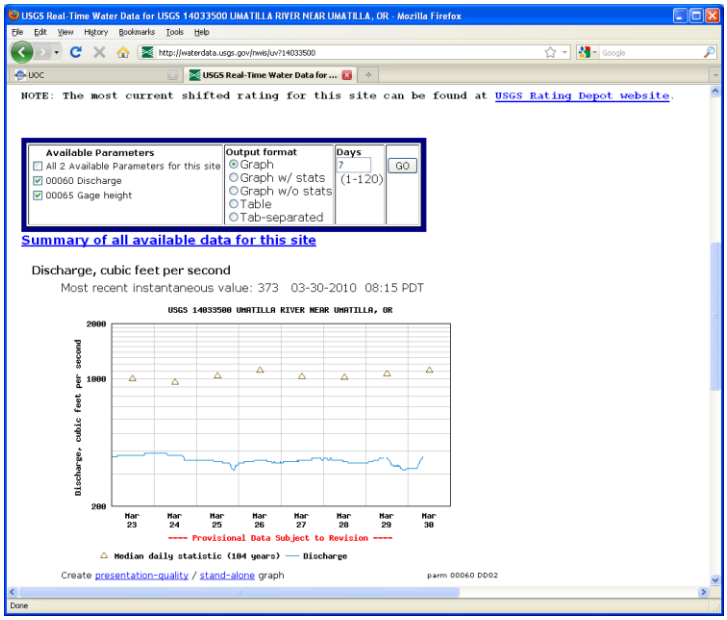
__8. From the Query Layer drop-down menu in the upper right, select "Federal --> USGS --> Streamgages Observed."



Next, use the "Table Info Query" tool to click-and-drag a box around a few stream gages.



In the "Query Results" window at the bottom of the screen, click on the hyperlink in the USGS Website Link field . This will open a new tab in your browser containing data for the gage directly from the USGS National Water Information System with real-time data:



From this site, you can also access upstream and downstream gages.

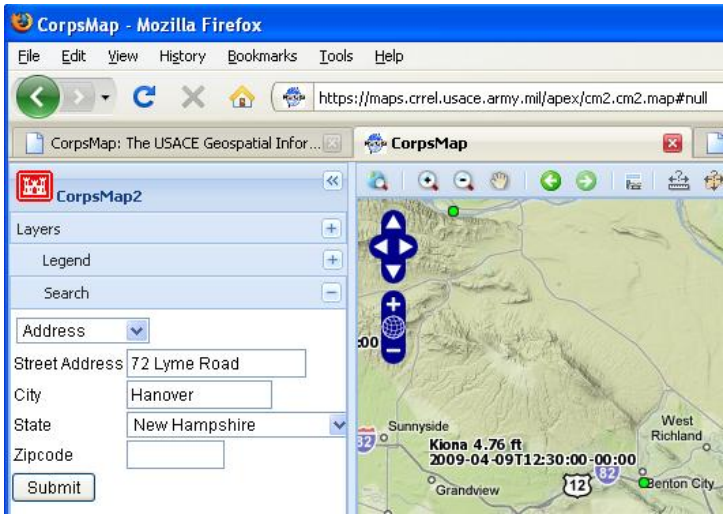
__9. Your boss calls, and asks for information on stream gages close to Hanover, NH

To answer this question, click back to the CorpsMap tab in your web browser.

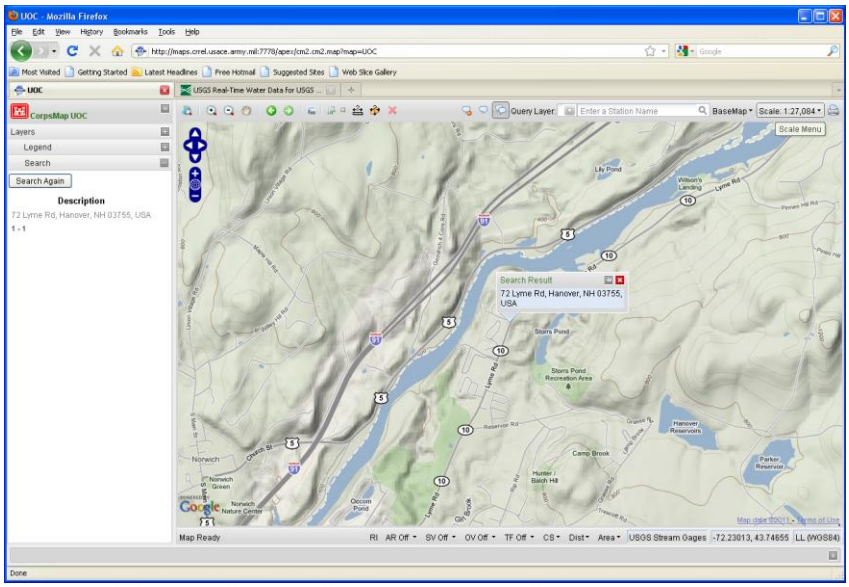
Click the "Search" button on the left side, under "Layers" and "Legend"

Click the drop-down menu to search by "Address"

Search for 72 Lyme Road, Hanover, NH

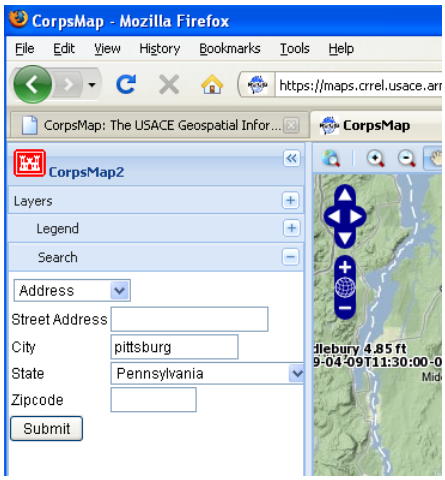


Click “Submit”. If the address is found, click on the address listed under the Search tab’s “Description”. CorpsMap should zoom you in to the area you have searched for. It may actually zoom in a bit too far, so that you get a gray screen with message indicating that maps aren’t available for that zoom level. If this happens, just change the scale to 1:27,000 or so. Zoom out a bit and look for stream gages in the Hanover area.

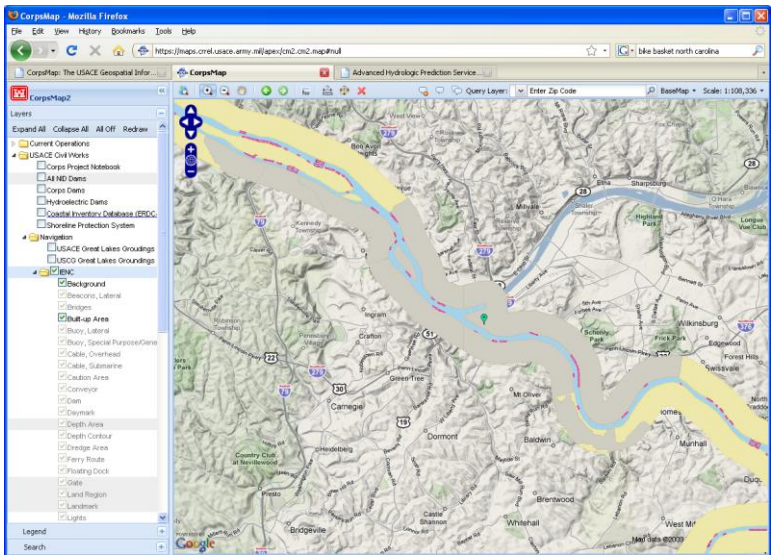


- What gages are close to Hanover, NH? _____

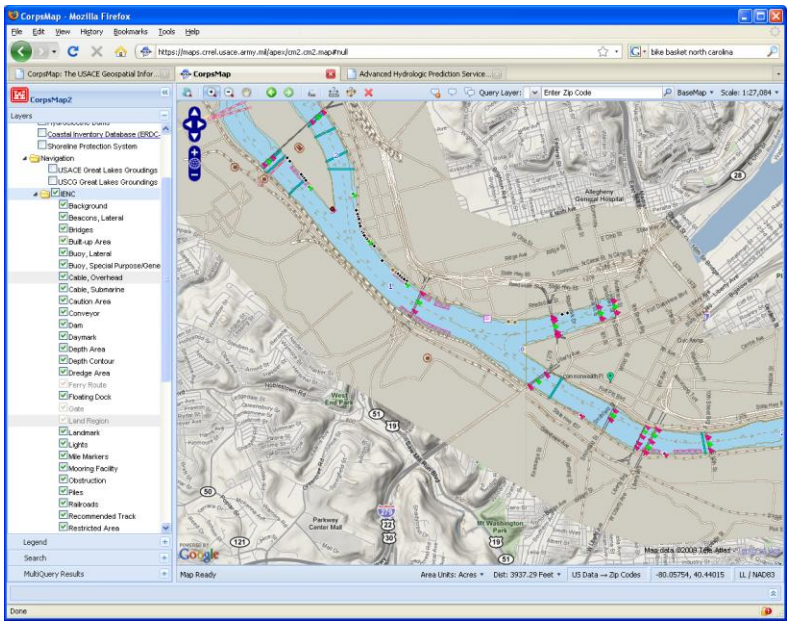
Use the “Search” tool again to get to the Pittsburgh, Pennsylvania area.



__10. Use the “Pan Map” to center Pittsburgh in the map and zoom into about 1:100,000. Turn off the stream gages, and expand USACE Civil Works > Navigation > IENC and check the IENC layer (next to the folder icon).



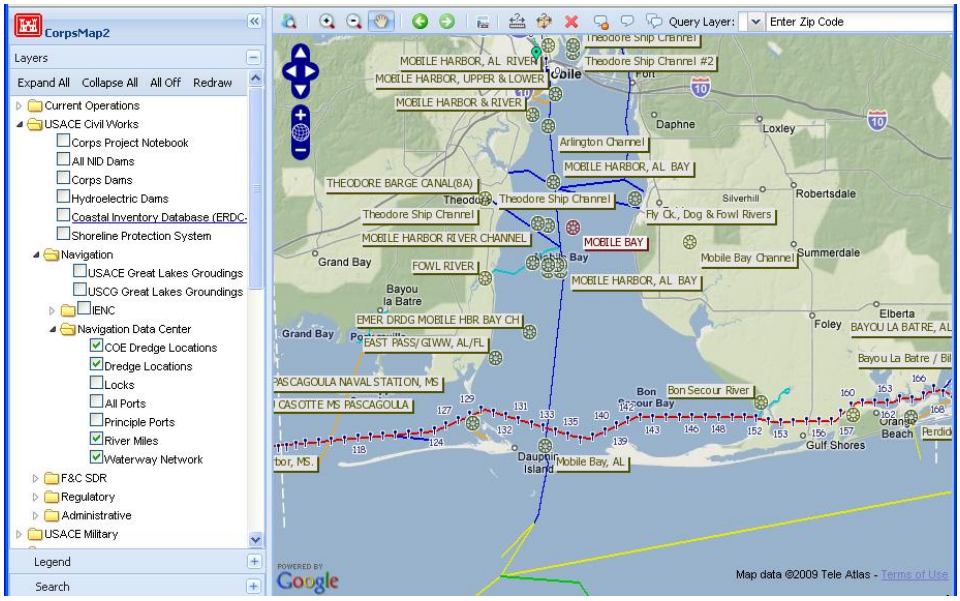
Zoom in to 1:27,084. This time you may have to wait a few moments while the map loads, because there are a significant number of layers being pulled in.



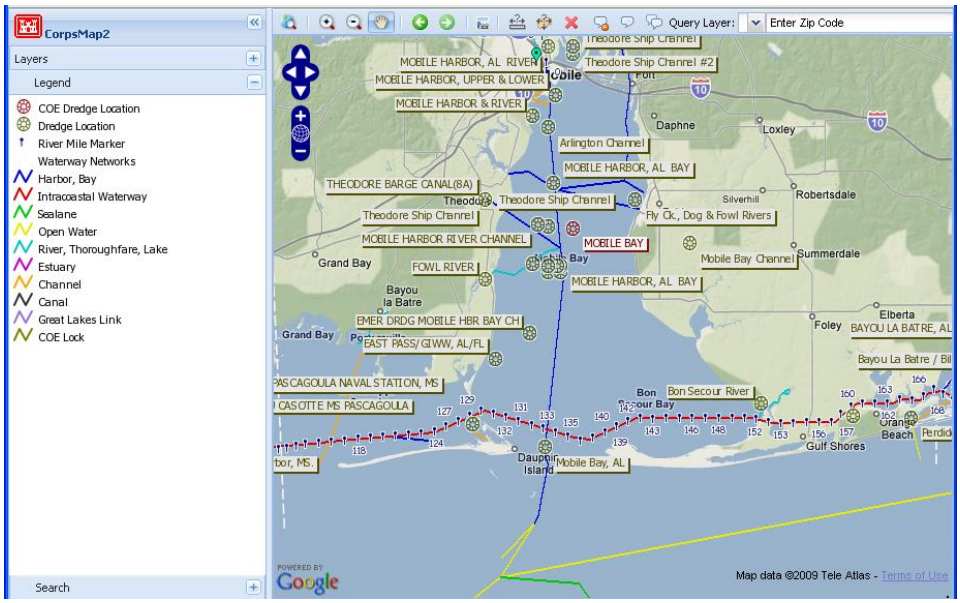
Turn off the "IENC Background" layer, and then switch over from "Layers" to the "Legend"

- What color is used to indicate a port-hand lateral mark buoy? _____

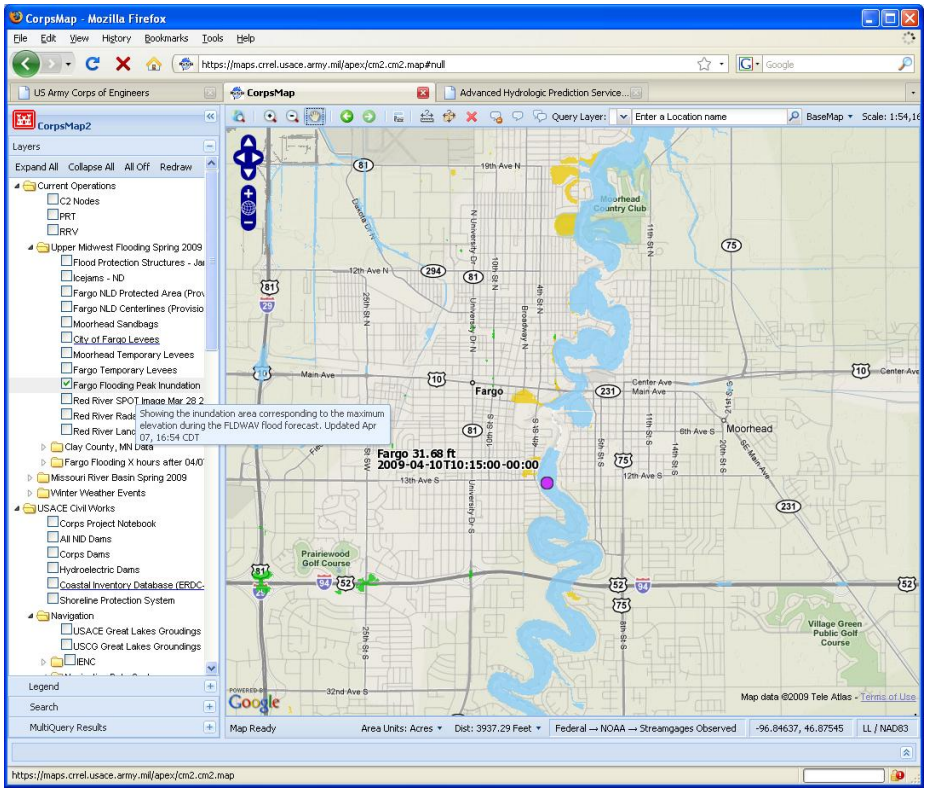
__11. Next navigate to the Mobile, Alabama area and turn on the layers inside the "Navigation Data Center" folder.



View the Map Legend:

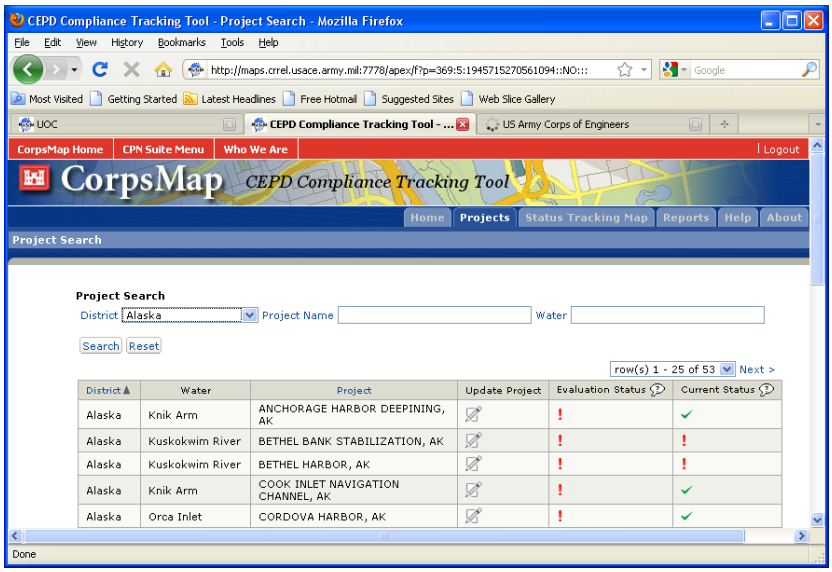


__12. Explore the other layers available to CorpsMap including the "Current Operations" layers:



__13. Time permitting, explore the "Current Operations Folder (in the CorpsMap table of contents) to see if there are any major events of interest. Then, explore the other links from the CorpsMap home page (https://corpsmap.usace.army.mil/). Take a look at the:

1. Corps Project Notebook
2. National Levee Database (NLD)
3. National Inventory of Dams (NID)
4. USACE Survey Monument Archival and Retrieval Tool (U-SMART)
5. Comprehensive Evaluation of Project Datum (CEPD)



6. CorpsMap Via ArcGIS (allows you to bring CorpsMap data in to ArcGIS), https://corpsmap.usace.army.mil/pages/arcgis.html
7. CorpsMap Web Mapping Services (WMS) library (Open Web Services) https://maps.crrel.usace.army.mil/apex/f?p=205:32
8. CorpsMap Web Feature Services (WFS) library: https://maps.crrel.usace.army.mil/apex/f?p=205:33
9. Raster catalog: https://maps.crrel.usace.army.mil/apex/f?p=205:31
10. CorpsMap Metadata browser: https://maps.crrel.usace.army.mil/apex/f?p=205:4
11. Geospatial Points of Contact: https://maps.crrel.usace.army.mil/apex/f?p=205:403
12. Publications and Reports: https://maps.crrel.usace.army.mil/apex/f?p=205:401
13. Further link such as the Corp's System-wide Water Resources program (SWWRP), USACE Civil Works, Inland Waterway Charts, Geodata.gov, SDSFIE, etc:: https://maps.crrel.usace.army.mil/apex/f?p=205:402

If there is still time left in the lab, browse in the map to your local district or office, and examine layers under the USACE Civil Works folder such as the Corps Project Notebook, Corps Dam, the "Regulatory" folder layers such as ORM Project locations). Also, check out other Federal agency data layers and the layers in the "Imagery" folder.

__ Lab 7 Complete.